

PATENT
ATTORNEY DOCKET IR 3735 NP**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: WANG, X. et al.

Group Art Unit 1754

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For: STABILIZATION OF ALKALINE HYDROGEN PEROXIDE

DECLARATION UNDER 37 CFR 1.132Commissioner for Patents
PO. Box 1450
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Sir:

Declarant, Xue Wang, hereby declares as follows:

1. That I am a co-inventor of the above-identified application and am familiar with the prosecution thereof, including the Examiner's conclusion in the Office Action mailed 09/26/2005 that the claimed compositions are obvious over Munday et al., US Patent 3,781,409.
2. That I believe our claimed discoveries are not taught or suggested by the cited art, as shown by the following data.
3. That I conducted experiments which mirror Example 1 of Munday et al. '409. In the experiments, I measured the pH and stability of a "stabilized" hydrogen peroxide composition as disclosed by Mundy et al. '409. The data shows that the 35% and 70% hydrogen peroxide

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combinations of Munday et al. '409 have pH ² lower than 7, and that they are not stable at high pH. The experiments were as follows:

A 10 ml "stock solution" was made according to patent US 3,781,409, Example 1. The "stock solution" was prepared with 0.35g from $\text{Na}_2\text{Sn}(\text{OH})_6$, 2.12g, 50% NaOH, 1.49g, 50% Amino-tri(methylene phosphonic acid) and de-ionized water. The pH of the "stock solution" was 13.2.

A 70% H_2O_2 solution with small amount of stabilizers [30ppm H_3PO_4 , 78ppm $\text{Na}_2\text{H}_2\text{P}_2\text{O}_7$, 7ppm $\text{Na}_2\text{Sn}(\text{OH})_6$] and a 50% H_2O_2 solution with 4ppm $\text{Na}_2\text{H}_2\text{P}_2\text{O}_7$ were used as starting material.

A 70% H_2O_2 sample was made by adding 0.154ml of the above "stock solution" to 20ml of the 70% starting H_2O_2 solution. An accelerated stability test was performed by heating the sample in a $100 \pm 0.5^\circ\text{C}$ oil bath for 24 hours. The concentration of H_2O_2 in the combination was tested via KMnO_4 titration before and after the test. No extra contamination was added to speed up the stability test.

77 μl of the above "stock solution", 18.06g of the 50% H_2O_2 solution, and 7.78g de-ionized water were added to make a 35% H_2O_2 sample with the amount of "stock solution" disclosed in patent US 3,781,409. The same accelerated stability tests were done as mentioned above with respect to the 70% H_2O_2 sample.

The stability of H_2O_2 was calculated as:

$$\text{Stability of } \text{H}_2\text{O}_2 (\%) = \frac{\text{End}[\text{H}_2\text{O}_2] \%}{\text{Starting}[\text{H}_2\text{O}_2] \%} \times 100\%$$

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The results are summarized in the Table:

	pH	Starting Conc (%)	End Conc (%)	Stability (%)
70% H ₂ O ₂	4.5	70.4	49.5	70
35% H ₂ O ₂	6.1	35.8	30.9	86

The results show:

- a) The starting pH of the 35% and 70% H₂O₂ samples with the "stock solution", prior to the pH adjustment taught by Munday et al. '409, was below 7.
- b) The 35% and 70% H₂O₂ with the "stock solution" exhibited a stability that was below 90% at these pHs. Our invention provides a stability of about 90% or higher at pH above 7.
- c) These experiments were done without the contamination method mentioned in patent US 3,781,409. It is obvious that the contaminated stability test would give even lower % stability results.

The testing shows that the present invention of "alkaline stable H₂O₂" is not obvious from the disclosure of US 3,781,409.

4. That all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that willful false statements may jeopardize the validity of this application or any

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patent issued thereon.

Date: 11/29/05

Signature: 
Xue Wang

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